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EXAMINER

KYLE, CHARLES R

ART UNIT PAPER NUMBER

3624

DATE MAILED: 01/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/292,552

Applicant(s)

MAURO ET AL.

Examiner

Charles R Kyle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 90-133 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 90-133 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 126-133 are objected to because of the following informalities: They are misnumbered because there is no Claim 125. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 133 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It recites the phrase “... offers to sell securities in a user-to user trading.” It is unclear what user-to-user trading is referred to, (i.e., a user-to-user trading *what?*).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 99-133 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims fail to recite that a computer program is embodied on a tangible computer readable medium and are therefore not statutory. See MPEP 2106 IV. B.1 quoted below.

1. Nonstatutory Subject Matter

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Claims to computer-related inventions that are clearly nonstatutory fall into the same general categories as nonstatutory claims in other arts, namely natural phenomena such as magnetism, and abstract ideas or laws of nature which constitute "descriptive material." Abstract ideas, Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759, or the mere manipulation of abstract ideas, Schrader, 22 F.3d at 292-93, 30 USPQ2d at 1457-58, are not patentable. Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held

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statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). When nonfunctional descriptive material is recorded on some computer-readable medium, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make it statutory. Such a result would exalt form over substance. In re Sarkar, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978) ("[E]ach invention must be evaluated as claimed; yet semantogenic considerations preclude a determination based solely on words appearing in the claims. In the final analysis under 101, the claimed invention, as a whole, must be evaluated for what it is.") (quoted with approval in Abele, 684 F.2d at 907, 214 USPQ at 687). See also In re Johnson, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978) ("form of the claim is often an exercise in drafting"). Thus, nonstatutory music is not a computer component and it does not become statutory by merely recording it on a compact disk. Protection for this type of work is provided under the copyright law.

Claims to processes that do nothing more than solve mathematical problems or manipulate abstract ideas or concepts are more complex to analyze and are addressed below.

If the "acts" of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. Schrader, 22 F.3d at 294-95, 30 USPQ2d at 1458-59. Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into

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another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process.

In practical terms, claims define nonstatutory processes if they:

– consist solely of mathematical operations without some claimed practical application

(i.e., executing a "mathematical algorithm"); or

– simply manipulate abstract ideas, e.g., a bid (Schrader, 22 F.3d at 293-94, 30

USPQ2d at 1458-59) or a bubble hierarchy (Warmerdam, 33 F.3d at 1360, 31

USPQ2d at 1759), without some claimed practical application.

Cf. Alappat, 33 F.3d at 1543 n.19, 31 USPQ2d at 1556 n.19 in which the Federal

Circuit recognized the confusion:

The Supreme Court has not been clear . . . as to whether such subject matter is

excluded from the scope of 101 because it represents laws of nature, natural

phenomena, or abstract ideas. See Diehr, 450 U.S. at 186 (viewed mathematical

algorithm as a law of nature); Gottschalk v. Benson, 409 U.S. 63, 71-72 (1972)

(treated mathematical algorithm as an "idea"). The Supreme Court also has not

been clear as to exactly what kind of mathematical subject matter may not be

patented. The Supreme Court has used, among others, the terms "mathematical

algorithm," "mathematical formula," and "mathematical equation" to describe types

of mathematical subject matter not entitled to patent protection standing alone. The

Supreme Court has not set forth, however, any consistent or clear explanation of

what it intended by such terms or how these terms are related, if at all.

Certain mathematical algorithms have been held to be nonstatutory because they

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represent a mathematical definition of a law of nature or a natural phenomenon. For example, a mathematical algorithm representing the formula $E = mc^2$ is a "law of nature" — it defines a "fundamental scientific truth" (i.e., the relationship between energy and mass). To comprehend how the law of nature relates to any object, one invariably has to perform certain steps (e.g., multiplying a number representing the mass of an object by the square of a number representing the speed of light). In such a case, a claimed process which consists solely of the steps that one must follow to solve the mathematical representation of $E = mc^2$ is indistinguishable from the law of nature and would "preempt" the law of nature. A patent cannot be granted on such a process.

(a) Functional Descriptive Material: "Data Structures" Representing Descriptive Material Per Se or Computer Programs Representing Computer Listings Per Se

Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Similarly, computer programs claimed as computer listings per se, i.e., the descriptions or

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expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

Computer programs are often recited as part of a claim. Office personnel should determine whether the computer program is being claimed as part of an otherwise statutory manufacture or machine. In such a case, the claim remains statutory irrespective of the fact that a computer program is included in the claim. The same result occurs when a computer program is used in a computerized process where the computer executes the instructions set forth in the computer program. Only when the claimed invention taken as a whole is directed to a mere program listing, i.e., to only its description or expression, is it descriptive material per se and hence nonstatutory.

Since a computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process and Office personnel should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program's functionality, as nonstatutory functional descriptive material.

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When a computer program is claimed in a process where the computer is executing the computer program's instructions, Office personnel should treat the claim as a process claim. See paragraph IV.B.2(b), below. When a computer program is recited in conjunction with a physical structure, such as a computer memory, Office personnel should treat the claim as a product claim. See paragraph IV.B.2(a), below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 91-92 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,136,501 *Silverman et al.*

With respect to Claim 91, *Silverman* discloses the invention substantially as claimed, including computer executable instructions residing on a computer readable medium for causing a workstation of a user to display a graphical user interface (Fig 5; Col. 9, line 46 to Col. 10, line 53 particularly Col. 10, lines 15-20), elements of

a first display area of sizes for a plurality of buy orders (Fig. 5, "Bid Side Blocks", eles. 71...80; Col. 8, line 45 to Col. 10, line14) for a security selected by the user (Col. 10, lines 15-20);

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a second display area of sizes for a plurality of sell orders for the security (Fig. 5, “Offer Side Blocks”, eles. 92...86; Col. 8, line 45 to Col. 10, line14); and

a third display area showing price levels that correspond to prices for the buy orders in the first display area and the sell orders in the second display area (Whole of Fig. 5 including “Bid Side Blocks” and “Offer Side Blocks”, eles. 92...86...71...80 and related text cited above).

Silverman does not specifically disclose that the list of price levels is a single list; rather, the list is composed of the two cited sub lists. Official Notice is taken that combination of such sub lists into a single list was old and well known at the time of the invention. For example, consolidation of similar information from several sources was done to make information more accessible to a user. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the sub lists of *Silverman* into a single list because this would provide convenience and continuity of order data to the user.

Concerning Claim 92, *Silverman* discloses a list area (Fig. 4, eles. 100...94...98...77...84) between a bid order area (Fig. 4, eles 73, 75, 82) and a sell order area (Fig. 4, eles. 96, 98, 90).

As to Claim 97, *Silverman* does not specifically disclose display of additional areas for display of plural securities. Official Notice is taken that it was old and well known at the time of the invention to display information on a plurality of securities in a trading interface. For example, a trader would routinely deal in multiple issues and need

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to track their market activity. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Silverman* to display information on additional securities because this would provide more opportunities for profitability in markets.

Claims 93-96 and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,136,501 *Silverman et al* in view of US 6,415,269 *Dinwoodie*.

With respect to Claims 93-94, *Silverman* discloses the invention substantially as claimed. See the discussion of Claim 91. *Silverman* does not specifically disclose highlighting to distinguish a current bid in display areas of a trading interface. *Dinwoodie* discloses such highlighting as a flashing at Col. 6, lines 19-29. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Silverman* to include such highlighting of bids because this would provide a visual cue to users as to which bid information presented on the interface was most important.

With respect to Claims 95-96, as noted above, *Silverman* discloses ask prices (offer side); rejection of the claims is analogous to that of bid side information Claims 93-94 directly above.

With respect to Claim 98, see the discussion of Claim 97 and 93-96.

Claims 99-119, 121-124 and 126-130 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,014,643 *Minton* in view of US 5,904,974 *Fraser et al*.

With respect to Claim 99, *Minton* discloses the invention substantially as claimed, including in a computer program for providing a graphical user interface which facilitates

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security trading by a user by providing a single-screen simultaneous display of non- overlapping screen components (Fig. 4, Col. 8, lien 29 to Col. 10, line 22) elements of:

- (a) a display of the user's current position in at least one security (Col. 8, lines 60-62);
- (b) a display of an open order list of the user (Col. 7, lines 33-45);
- (d) a display of offers to buy and offers to sell at least one security (Fig 4, eles. 425, 432; Col. 9, line 64 to Col. 10, line 12).

Minton does not specifically disclose display of a trade ticket. *Fraser* discloses the display of a trade ticket at Col. 7, lines 14-23. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Minton* to include the display of a trade ticket as in *Fraser* because this would confirm details of a trade to a user.

Concerning Claim 100, see the discussion of Claim 99 and *Minton* further discloses display of a user's position at Col. 8, lines 60-62.

With respect to Claims 101 and 105, *Minton* discloses spread at Col. 1, lines 41-65. It is displayed in Fig. 4 as the difference between lowest offer and best bid. Specific display would be obvious to provide a trader with information to make money as disclosed at Col. 1, lines 41-65.

With respect to Claims 102-104, Official Notice is taken that they recite old and well known function of visual accentuation by color, window opening/closing and window resizing. For example, these functions of a GUI were known before the time of the invention in the Microsoft Windows TM and Apple TM operating systems. It would have been obvious to one of

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ordinary skill in the art at the time of the invention to include these functions in the interface of *Minton* because this would provide easy and familiar ways to draw attention to and manipulate important trading information so as to facilitate trading activities.

Concerning Claim 106, *Minton* discloses display of a watch list at Col. 8, lines 63-67 and Fig. 4, ele. 412.

With respect to Claims 107, 112, 117 and 122, see the discussion of the respective Claims from which they depend and Claim 102.

With respect to Claims 108, 113, 118 and 123, see the discussion of the respective Claims from which they depend and Claim 103.

With respect to Claims 109, 114, 119 and 124, see the discussion of the respective Claims from which they depend and Claim 104.

With respect to Claims 111, 116, 121 and 122, see the discussion of the respective Claims from which they depend and Claim 102.

With respect to Claim 110, *Minton* discloses display of news at Fig. 4, ele. 438 and Col. 9, lines 12-17.

With respect to Claim 115, *Minton* does not specifically disclose prefilling of fields in a trade ticket. Official Notice is taken that it was old and well known to prefill information in display screen fields. For example, if a person had previously entered data in a field, upon return to the same from at a later time, certain fields were prefilled for convenience. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Minton* to

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include such prefilling because this would save trader time and improve trader performance and profitability.

Concerning Claims 126-130, see the discussion of the respective Claims from which they depend and *Minton* further discloses an article of manufacture comprising a tangible computer readable storage medium storing the program at Fig. 2, and Col. 5, line 24 to Col. 6, line 15.

Claims 120 and 131-133 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,136,501 *Silverman et al* in view of US 6,415,269 *Dinwoodie* and further in view of US 6,317,728 *Kane*.

With respect to Claim 120, see the discussion of Claim 115. *Minton* does not specifically disclose display of trader account balances and profit and loss statements. *Kane* discloses this limitation at Fig. 18 and Col. 14, lines 37-41. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Minton* to include the features disclosed by *Kane* because this would keep traders apprised of their trading situation and improve trader performance and profitability.

With respect to Claim 131, see the discussion of Claim 99, 120 and 110. *Kane* further discloses the use of the Internet at Col. 7, lines 34-41. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Minton* with the use of the internet disclosed by *Kane* because this would provide rapid and cheap communication of trading information.

With respect to Claims 132-133, see the discussion set forth above.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles R Kyle whose telephone number is (703) 305-4458. The examiner can normally be reached on M-F 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent A Millin can be reached on (703) 308-1065. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

crk
January 27, 2005

Examiner Charles Kyle

A handwritten signature in black ink, appearing to read "Charles Kyle", with a stylized flourish at the end.